

**DRAWING AMENDMENTS**

**Please amend FIG. 2 (i.e., Drawing Sheet 2/3) as follows:**

-- Cancel reference numeral 3350 and replace with reference numeral 350. --

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SERIAL NO. 10/812,478**

**REMARKS****I. Specification**

The Applicant notes that paragraphs [0019] and [0028] have been amended to correct typographical errors. The Applicant submits that no new matter has been added with these amendments.

**II. Drawings**

The Applicant notes that FIG. 2 has been amended to correct reference numeral 3350 to reference numeral 350.

The Applicant submits that no new matter has been added with this amendment.

**III. Claim Rejections - 35 USC §101**

The Examiner rejected claim 16 under 35 U.S.C. §101 as being directed to a machine; however, the Examiner argued that both a process of using and a machine are claimed.

The Applicant notes that claim 16 as amended removes wording which referred to a process claim. The Applicant respectfully request that the 35 U.S.C. §101 rejection of claim 16 be withdrawn.

#### IV. Claim Rejections - 35 USC §112

The Examiner rejected claim 17 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention.

The Examiner argued that claim 17 is dependent upon claim 16 which requires a mirror to guide the light, however, the Examiner stated that claim 17 calls for a direct light path. It is not clear to the Examiner how light guided by a mirror could result in a direct light path.

The Applicant notes that claim 17 has been amended to remove the claim to a direct light path. The Applicant respectfully requests that the 35 U.S.C. §112 rejection of claim 17 be withdrawn.

#### V. Claim Rejections - 35 USC § 102

##### Requirements for Prima Facie Anticipation

A general definition of *prima facie* unpatentability is provided at 37 C.F.R.

##### §1.56(b)(2)(ii):

A *prima facie* case of unpatentability is established when the information *compels a conclusion* that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability. (*emphasis added*)

"Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 960, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)), *cert. denied*, 469 U.S. 851 (1984). Thus, to anticipate the applicants' claims, the reference cited by the Examiner must disclose each element recited therein. "There must be no difference between the claimed invention and

the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991).

To overcome the anticipation rejection, the applicants need only demonstrate that not all elements of a *prima facie* case of anticipation have been met, *i.e.*, show that the reference cited by the Examiner fails to disclose every element in each of the applicants' claims. "If the examination at the initial state does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent." *In re Oetiker*, 977 F.2d 1443, 24 USPQ 2d 1443, 1444 (Fed. Cir. 1992).

**Kim**

The Examiner rejected claims 1-5, 12-16, 19 and 20 under 35 U.S.C. 102(b) as being anticipated by Kim (U.S. Patent Pub. No. 2002/0021855).

Regarding claims 1 and 11, the Examiner argued that Kim discloses (FIG. 1) a system and method comprising: at least one light source (104c) and at least one light sensor (102c) associated with at least one component (84a) of a data-processing system; at least one other light source (104a) and at least one other light sensor (104c) associated with at least one other component (84b) of said data processing system; and wherein data is communicated between said at least one component and said at least one other component of said data processing system by transmitting light from said at least one light source to said at least one other component of said data processing system by transmitting light from said at least one other light source to said at least one sensor.

The Applicant respectfully disagrees with this assessment and notes that claim 1 and 11 have been amended to the following:

1. A method, comprising:

associating at least one light source and at least one light sensor with at least one component of a data-processing system;  
associating at least one other light source and at least one other light sensor with at least one other component of said data-processing system; and  
communicating data directly between said at least one component and said at least one other component of said data-processing system by transmitting light with one or less turns at a reflection point from said at least one light source to said at least one other light sensor or with one or less turns at another reflection point from said at least one other light source to said at least one sensor.

11. A system, comprising:

at least one light source and at least one light sensor associated with at least one component of a data-processing system;  
at least one other light source and at least one other light sensor associated with at least one other component of said data-processing system; and  
wherein data is communicated directly between said at least one component and said at least one other component of said data-processing system by transmitting light with one or less turns at a reflection point from said at least one light source to said at least one other light sensor or with one or less turns at a reflection point from said at least one other light source to said at least one sensor.

The Applicant notes that claim 1 and 11 are directed to a communications method and system within a data-processing system utilizing light beams transmitted from one component to another within the data-processing system. The Applicant's invention does not include a *bus or a backplane* to transmit data from one portion of the data-processing system to another. The invention transmits the light beams *directly* from one component to another or with a mirror with *one turn*, as disclosed in FIGS. 2-4. The claims have been amended to clarify this distinction with the addition of the word "directly" and with the addition of the clause "with one or less turns at a reflection point" to claim a transmission of the light with no more than one reflection point.

Kim discloses a light communications system within a data-processing system which utilizes a backplane or a bus. This is disclosed in Kim FIG. 1 as the wave guiding plate (reference item 32) and in paragraphs [0037] and [0038]. FIG. 1 clearly shows multiple reflection points for the light beams in the waveguide (32) as the light travels from one component to another. Kim's utilization of an optical bus

requires the *re-transmission of the optical signal* as the light travels from one component to another. This is shown in paragraph [0055] as follows:

"FIG. 2b is a schematic drawing which shows distributor 84c transmitting optical signal 120 generated by distributor 84c or *rebroadcasting* an optical signal from one of the other components 84a, 84b, 84d and 84e, to receivers 102a, 102b, 102d and 102e, or respective active couplers 100a, 100b, 100d and 100e." (emphasis added)

Therefore, Kim does not disclose the invention of the Applicant's claim 1 and 11. Kim does not disclose a data communication system wherein the data is transmitted directly with one or less turns at a reflection point. Kim does not disclose each and every element of the claims under consideration.

Based on the foregoing, the Applicant respectfully requests that the 35 U.S.C. §102(b) rejections of claims 1 and 11 based on the Kim reference be withdrawn.

Regarding claim 2 and 12, the Examiner argued that Kim discloses at least one light path patch established between said at least one component and said at least one other component of said data-processing system in order to communicate data by light among said at least one light source, said at least one sensor, said at least one other light source and said at least one other sensor.

Regarding claims 3 and 13, the Examiner argued that Kim discloses at least one light source and said at least one other light source each comprise an LED (col. 4, lines 50-55).

Regarding claims 4 and 14, the Examiner argued that Kim discloses at least one light source and said at least one other light source each comprise a VCSEL (col. 4, lines 55-60).

The Applicant respectfully disagrees with this assessment and notes that the argument presented above against the §102 rejections of claim 1 and 11 apply equally against the rejections of claims 2-4 and 12-14 as they are dependent upon claims 1 and 11. Kim does not disclose a system/method wherein the data is transmitted directly with one turn or less at a reflection point.

Based on the foregoing, the Applicant respectfully requests that the 35 U.S.C. §102(b) rejections of claims 2-4 and 12-14 based on the Kim reference be withdrawn.

Regarding claims 5 and 15, the Examiner argued that Kim discloses at least one mirror (32) for guiding light emitted from said at least one light source to said at least one other light sensor or light emitted from said at least one other light source to said at least one light sensor.

The Applicant respectfully disagrees with this assessment and notes that the arguments presented above against the §102 rejections to claims 1 and 11 apply equally against the §102 rejections against claims 5 and 15 as they are dependent upon claims 1 and 11.

Additionally, the Examiner has argued that Kim reference item 32 discloses a mirror; however, reference item 32 of Kim is a waveguide and not a mirror. The light enters the waveguide and transmitted to another component. Paragraphs [0037] and [0038] disclose that the waveguide 32 can be composed of a polymer "satisfactory for use in communicating optical signals therethrough". A waveguide composed of a polymer for use in communicating optical signals is not a mirror. Paragraph [0038] discloses that the waveguide 32 *diffracts* the light in its utilization as a waveguide.

Based on the foregoing, the Applicant respectfully requests that the 35 U.S.C. §102(b) rejections of claims 5 and 15 based on the Kim reference be withdrawn.

Regarding claims 16, 19 and 20, the Examiner argued that Kim discloses a system comprising: at least one light source (104c) and at least one light sensor (102c) associated with at least one component of a data-processing system; at least one other light source (104a) and at least one other light sensor (104c) associated with at least one other component of said data-processing system, wherein data is communicated between said at least one component and said at least one other component of said data-processing system by transmitting light

from said at least one light source to said at least one other light sensor or from said at least one other light source to said at least one sensor; at least one light path (where light is transmitted) established between said at least one component and said at least one other component of said data-processing system in order to communicate data by light among said at least one light source and said at least one other sensor; and locating at least one mirror (32) at an end of said at least one light path in order to guide light emitted from said at least one light source to said at least one other light sensor and light emitted from said at least one other light source to said at least one light sensor. The Examiner argued that Kim further discloses the use of LED or VCSEL as the light sources.

The Applicant respectfully disagrees with this assessment and notes that independent claim 16 has been amended to the following:

A system, comprising:

at least one light source and at least one light sensor associated with at least one component of a data-processing system;

at least one other light source and at least one other light sensor associated with at least one other component of said data-processing system, wherein data is communicated between said at least one component and said at least one other component of said data-processing system by transmitting light from said at least one light source to said at least one other light sensor or from said at least one other light source to said at least one sensor;

at least one light path established between said at least one component and said at least one other component of said data-processing system in order to communicate data by light among said at least one light source, said at least one sensor, said at least one other light source and said at least one other sensor; and

at least one mirror located at an end of said at least one light path in order to guide light emitted directly from said at least one light source to said at least one mirror and thence directly to said at least one other light sensor and light emitted directly from said at least one other light source to said at least one mirror and thence directly to said at least one light sensor.

Kim does not disclose at least one mirror located at an end of the light path, as argued above against the rejections of claims 5 and 15. Kim also does not disclose the light path wherein the light is transmitted to the mirror and then directly to the sensor. Kim discloses a waveguide and not a mirror.



Based on the foregoing, the Applicants respectfully request that the 35 U.S.C. §102(b) rejections of claims 16, 19 and 20 based on the Kim reference be withdrawn.

***Ozeki et al.***

The Examiner rejected claims 16 and 17 under 35 U.S.C. §102(b) as being anticipated by Ozeki et al (U.S. Patent No. 6,317,242), hereinafter referred to as "Ozeki".

Regarding claim 16, the Examiner argued that Ozeki discloses (FIG. 1) a system comprising: at least one light source (42a) and at least one light sensor (42b) associated with at least one component of a data-processing system; at least one other light source (42a) and at least one other light sensor (42b) associated with at least one other component of said data-processing system, wherein data is communicated between said at least one component and said at least one other component of said data-processing system by transmitting light from said at least one light source to said at least one other light sensor or from said at least one other light source to said at least one sensor; at least one light path (where light is transmitted) established between said at least one component and said at least one other component of said data-processing system in order to communicate data by light among said at least one light source, said at least one sensor, said at least one other light source and said at least one other sensor; and locating at least one mirror (32) at an end of said at least one light path in order to guide light emitted from said at least one light source to said at least one other light sensor and light emitted from said at least one other light source to said at least one light sensor.

The Applicant respectfully disagrees with this assessment and notes that claim 16 has been amended to a system wherein the light travels directly from the light source to a mirror and thence directly to the light sensor. Ozeki does not disclose a system wherein the light travels directly from the light source to a mirror

and thence directly to a sensor. Ozeki utilizes an optical bus system for the re-transmission of the light, similar to the Kim reference.

The Examiner has cited reference item 32 in Ozeki as the mirror located at the end of a light path; however, Ozeki does not include a reference item 32 and does not include a mirror for the reflection of the light. Possibly, the Examiner meant to indicate reference item 42? Ozeki re-transmits the light utilizing a repeater (reference item 42c) as shown in col. 6, lines 58-61 as follows:

"The signal light having reached the node E is received by the signal light receiving unit 42b of that node and sent out in the opposite direction by the signal unit 42a via the repeater 42c."

Ozeki does not disclose a mirror and does not disclose a system with light emitted directly from a source to a mirror and thence directly to a sensor. Therefore, Ozeki does not disclose each and every element of the Applicant's claim 16.

Based on the foregoing, the Applicant respectfully request that the 35 U.S.C. §102(b) rejection of claim 16 based on the Ozeki reference be withdrawn.

Regarding claim 17, the Examiner argued that Ozeki discloses (FIG. 2) at least one component located directly opposite said at least one other component in order to form a direct light path between said at least one light source and said at least one other sensor and said at least one other light source and said at least one light sensor.

The Applicant notes that claim 17 has been amended to the following:

The system of claim 16 wherein said at least one light source and said at least one light sensor utilize a different wavelength than said at least one other light source and said at least one other light sensor.

Claim 17 is directed to the system of claim 16 with the further limitation of utilizing different wavelengths for the different pairs of light sensors and light

sources. Ozeki does not disclose the utilization of different wavelengths for the different pairs of sensors and sources and therefore, does not disclose each and every element of the Applicant's claim 17.

Based on the foregoing, the Applicant respectfully requests that the 35 U.S.C. §102(b) rejection based on the Ozeki reference be withdrawn.

## **VI. Claim Rejections - 35 USC § 103**

### ***Requirements for Prima Facie Obviousness***

The obligation of the examiner to go forward and produce reasoning and evidence in support of obviousness is clearly defined at M.P.E.P. §2142:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

M.P.E.P. §2143 sets out the three basic criteria that a patent examiner must satisfy to establish a *prima facie* case of obviousness:

1. some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
2. a reasonable expectation of success; and
3. the teaching or suggestion of all the claim limitations by the prior art reference (or references when combined).

It follows that in the absence of such a *prima facie* showing of obviousness by the Examiner (assuming there are no objections or other grounds for rejection), an applicant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443 (Fed. Cir. 1992). Thus, in order to support an obviousness rejection, the Examiner is obliged to produce evidence compelling a conclusion that each of the three aforementioned basic criteria has been met.

***Ozeki et al. in view of Dries***

The Examiner rejected claim 18 under 35 U.S.C. §103(a) as being unpatentable over Ozeki in view of Dries (U.S. Patent No. 6,740,864).

The Examiner argued that Ozeki discloses the invention as set forth above. The Examiner admitted that Ozeki does not disclose the components located perpendicular to each other. The Examiner argued that Dries discloses (FIG. 1) the components can be located perpendicular to each other and the signal can be delivered via a mirror. The Examiner argued that it is well known to place components perpendicular to each other and deliver the signals via mirrors. The Examiner stated that it would have been obvious to a person of ordinary skill in the art at the time of the invention to place components perpendicular and use a mirror to redirect signals to better utilize the optical bus (by placing the boards on the two sides without the components, citing FIG. 1).

The Applicant respectfully disagrees with this assessment and notes that claim 18 is dependent upon amended claim 16. Claim 16 has been amended to include the limitation wherein the light is emitted so that it travels directly to a mirror and thence directly to a sensor.

The Applicant notes that the argument presented above against the §102 rejection of claim 16 applies equally against the §103 rejection of claim 18 based on the Ozeki/Dries references as Ozeki does not disclose a system wherein the light travels directly from the source to a mirror and thence to the sensor. As shown above, Ozeki utilizes an optical bus and does not disclose the light transmitted directly. The Ozeki and Dries references, either separately or in combination, do not disclose each and every limitation of the Applicant's claim 18.

Based on the foregoing, the Applicant respectfully request that the 35 U.S.C. §103(a) rejection of claim 18 based on the Ozeki and Dries references be withdrawn.

#### **V. Conclusion**

In view of the foregoing discussion, the Applicant has responded to each and every rejection of the Official Action. The Applicant has clarified the structural distinctions of the present invention. Also, the amendments provided herein are presented for clarification purposes only. Applicant respectfully requests the withdrawal of the rejections under 35 U.S.C. §101, §102, §112 and §103 based on the preceding remarks. Reconsideration and allowance of Applicant's application is also respectfully solicited.

Should there be any outstanding matters that need to be resolved, the Examiner is respectfully requested to contact the undersigned representative to conduct an interview in an effort to expedite prosecution in connection with the present application.

Respectfully submitted,



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